A Longitudinal Perspective on Dating Violence Among Adolescent and College-Age Women

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Objectives. We investigated physical assault in dating relationships and its co-occurrence with sexual assault from high school through college.

Methods. Two classes of university women (n=1569) completed 5 surveys during their 4 years in college.

Results. Women who were physically assaulted as adolescents were at greater risk for revictimization during their freshman year (relative risk=2.96); each subsequent year, women who have experienced violence remained at greater risk for revictimization than those who have not. Across all years, women who were physically assaulted in any year were significantly more likely to be sexually assaulted that same year. Adolescent victimization was a better predictor of college victimization than was childhood victimization.

Conclusions. There is a need for dating violence prevention/intervention programs in high school and college and for research on factors that reduce revictimization. (*Am J Public Health.* 2003;93:1104–1109)

Physical and sexual victimization are serious problems affecting young women in high school and college. In their national sample of college students, White and Koss[1] found that 32% of the women experienced physical dating violence from age 14 through their college years (the average age of the women was 21.4 years). The National Longitudinal Study of Adolescent Health,[2] based on a nationally representative sample of nearly 7000 high school students, found that 10% of the young women reported having been pushed by a romantic partner in the 18 months before the survey, and 3% reported having something thrown at them by a partner. National data on sexual assault indicate that half of all females who experience sexual assault are between the ages of 12 and 24 years[3] and that most rapes occur before age 24 years.[4] A longitudinal study by Humphrey and White[5] found that 69.8% of college women had experienced at least 1 instance of sexual violence from age 14 through the fourth year of college.

Adolescence (i.e., ages 14–18 years) is a particularly risky time for dating violence. In the 1997 South Carolina Youth Behavior Risk Survey,[6] 9.7% of girls in grades 9 through 12 reported being "beaten up" by a boyfriend, and 21.3% reported being sexually assaulted. Data from the 1999 Massachusetts Youth Risk Behavior Survey[7] for this same age group indicated that the lifetime rate of being "physically hurt" by a dating partner was 15.4% and the lifetime rate of sexual assault was 9.1%. Humphrey and White[5] found that 50% of their sample of college women reported sexual victimization only in adolescence. They as well as Gidycz et al.[8] found that women who were sexually victimized in high school were at greater risk for sexual victimization in college.

Except for the studies by Humphrey and White[5] and Gidycz et al.,[8] studies of dating violence have been cross-sectional. Little is known about the occurrence or recurrence of physical victimization longitudinally or whether young women who are victimized as children or as adolescents are at greater risk for victimization in college. Data also are lacking on covictimization, defined here as both physical and sexual assault occurring within the same time period but not necessarily simultaneously during a single violent event or with the same perpetrator. We do not know whether covictimization is inevitable, given the high incidence of both physical and sexual assault, or whether it is a distinct form of dating violence victimization.

We report findings from a larger longitudinal study of the correlates and consequences of sexual and physical victimization from high school through the fourth year of college.[5,9] We examined the time course of physical victimization from adolescence through 4 years of college to assess (1) the prevalence of physical victimization in dating relationships over time, (2) the extent to which experiences with childhood victimization (e.g., witnessing domestic violence, being sexually victimized, being physically assaulted by a family member) affect the probability of physical victimization in high school and in college, (3) how being victimized in high school affects a woman's probability of being revictimized in college, and (4) whether women who are physically assaulted within the span of a year are likely to be sexually assaulted during that same year (i.e., covictimized).

METHODS

Study Design and Sampling

We used a longitudinal design, replicated over 2 cohorts. All women aged 18 to 19 years and entering the University of North Carolina at Greensboro for the first time in 1990 and 1991 (n=1569) were asked to complete a series of 5 surveys. According to the Carnegie Foundation for the Advancement of Teaching,[10] this university is considered representative of state colleges, the type that approximately 80% of all college students attend. The sample was 70.9% White, 25.3% Black, and 3.8% other ethnic groups.

Each survey covered a nonoverlapping period in the student's life: childhood, adolescence, and each of 4 years of college. Data on childhood and adolescent experiences were collected retrospectively, whereas the data on college experiences were collected prospectively. For the collegiate years, students were given a fixed reference point that limited the recall interval to the previous year.

We obtained a federal Certificate of Confidentiality from the National Institute of Mental Health and approval from the university's institutional review board. Participants received $15 for each completed survey.

Because of possible confounding owing to students withdrawing, we conducted a set of analyses to compare the course of victimization for those women who remained in the study through all survey administrations with those who did not.

Survey Measures

Childhood victimization. In the first survey, we asked respondents about 3 types of childhood victimization: sexual abuse, parental physical abuse, and witnessing domestic violence. We categorized respondents as having experienced childhood sexual abuse if, before age 14 years, an adult had perpetrated any coercive sexual act on the respondent or if a similarly aged peer had used a coercive tactic.[11] We categorized respondents as having experienced parental physical abuse if they reported that, at least once in an average month, their parent or guardian had used "physical blows" against them (e.g., hitting, kicking, throwing them down to the floor).[12] We categorized respondents as having witnessed domestic violence if they responded that, at least once during an average month, their parents or guardians had delivered physical blows to one another.[12] For the purposes of some analyses, we combined our 3 measures of childhood victimization to identify a respondent as having experienced "none" or "any" childhood victimization.

Adolescent and collegiate physical victimization. We used a modified version of the violence subscale of the Conflict Tactics Scale (CTS)[13] to assess physical assault during adolescence and college. Principal components factor analysis of the CTS with varimax rotation indicted that 5 items loaded together on the first factor (item loadings ranged from .690 to .812). Cronbach αs for this 5-item scale ranged from .78 to .84 for the 5 surveys.

Respondents were classified as having been physically assaulted if they indicated that a romantic partner (i.e., someone they were dating) had done any of the following to them at least once: threatened to hit or to throw something at them; threw something at them; pushed, grabbed, or shoved them; hit or attempted to hit them with a hand or fist; or hit or attempted to hit them with something hard. The item "threatened to hit" is not typically included in the CTS. Our measure does not include the item "beat up," which is generally part of the CTS; this item was deleted after pilot testing showed that it was not endorsed. Thus, our measure of physical assault is likely to capture less visible and less severe acts of physical aggression than have been captured by some of the other studies that used the CTS.

The time frame for the first survey was childhood and adolescence through current age. The time frame for each subsequent survey was the past school year.

Adolescent and collegiate sexual victimization. In the first survey, we asked respondents to indicate how many times since the age of 14 years they had experienced each of the sexual behaviors described in the Sexual Experiences Survey[14]; for each subsequent survey, we asked respondents how often each experience had occurred during the past school year. We placed respondents into 1 of 6 categories of sexual experience according to the most extreme experience: "none," "consensual only," "unwanted contact," "verbal coercion," "attempted rape," or "rape." This measure allowed us to capture a range of coercive sexual experiences.

Data Analysis

We performed several sets of analyses. First, we calculated the prevalence of high school and collegiate physical assault and covictimization for each year (Table 1) and crossed these by race and by prior childhood and/or adolescent victimization (Table 2).

Second, we conducted survival analyses to determine the risk of first physical victimization from high school through 4 years of college as a function of each form of childhood victimization and the risk of physical victimization during the collegiate years as a function of adolescent victimization. For these analyses, we dichotomized the sample as having experienced or not having experienced victimization for each nonoverlapping time period (childhood, adolescence, and each year of college). In the analyses, censored data included responses of participants who dropped out? before the final assessment

TABLE 1—Prevalence of Dating Violence Victimization by Type From High School Through College

	Incidence					
Type of Violence	High School (n = 1545)	1st Year of College (n = 1317)	2nd Year of College (n = 1007)	3rd Year of College (n = 870)	4th Year of College (n = 727)	Lifetime Prevalence (n = 1037)
No violence, %	33.3	53.1	64.8	65.2	71.0	12.0
Physical or sexual, %	66.7	46.9	35.2	34.8	29.0	88.0
Any physical, %	42.9	27.2	24.3	22.7	18.6	77.8
Partner threatened to hit or throw something, %	25.4	13.3	11.7	12.4	8.8	42.3
Partner threw something, %	11.1	6.5	6.4	6.9	4.7	23.7
Partner pushed, grabbed, or shoved, %	34.0	21.5	19.6	19.0	14.9	52.8
Partner hit or attempted to hit with hand or fist, %	6.3	9.7	9.0	8.8	7.8	31.4
Partner hit or attempted to hit with something hard, %	5.0	2.6	3.3	3.4	1.5	13.3
Only physical, %	16.8	13.9	14.7	14.0	11.4	11.0
Any sexual, %	49.5	33.1	20.7	20.5	17.1	79.2
Only sexual, %	23.8	20.1	10.7	12.0	10.5	13.6
Both physical and sexual (covictimization), %	26.1	12.9	9.8	8.9	7.2	63.5

TABLE 2—Proportion of Women Who Experienced 3 Types of Victimization During College, by Childhood and Adolescent Victimization[a]

Outcome by Prior Victimization	Year of College, %			
	1st	2nd	3rd	4th
No childhood or adolescent victimization				
Only physical	6.7	11.4	7.1	5.2
Only sexual	13.4	3.8	8.1	5.2
Covictimization	2.1	3.8	4.6	5.2
Total	22.2	19.0	19.8	15.6
Childhood victimization but no adolescent victimization				
Only physical	10.3	10.0	11.5	6.1
Only sexual	16.7	4.0	12.8	10.6
Covictimization	4.8	7.0	5.1	7.6
Total	31.8	21.0	29.4	24.3
No childhood victimization but adolescent victimization				
Only physical	15.9	16.2	15.4	13.1
Only sexual	21.5	12.5	11.9	13.9
Covictimization	4.3	6.7	6.7	3.8
Total	41.7	35.4	34.0	30.8
Both childhood and adolescent victimization				
Only physical	17.0	15.7	20.4	18.1
Only sexual	26.5	16.7	15.7	11.9
Covictimization	21.6	20.0	15.7	12.4
Total	65.1	52.4	51.8	42.4

[a]Childhood victimization was defined as witnessing domestic violence or experiencing either parental physical punishment or sexual victimization. Adolescent victimization was defined as physical victimization or sexual victimization by a romantic partner.

phase and those of participants who had reported no victimization by the end of the study. We estimated a hazard function for each specified time period and examined the standard errors to determine whether hazard functions overlapped. Because we had no a priori knowledge of what the survival functions should look like, we used nonparametric methods of estimating them; we based subgroup comparisons on the χ^2 statistic.[15]

Third, we calculated the prevalence ratio[16] of experiencing sexual assault given physical assault in the same year (cross-sectional analysis) and the relative risk of experiencing physical assault in a year given exposure to physical assault in a prior year (longitudinal analysis).

RESULTS

For the 1990 sample, successive retention rates for each follow-up were 88.2%, 83.2%, 83.6%, and 78.1% (47.9% of the original sample participated in the entire project; this number is only slightly lower than the 55% of students who remained in the university during the 5-year period). For the 1991 sample, successive retention rates were 90.2%, 83.9%, 77.9%, and 77.1% (45.4% of the original sample were retained throughout the entire project). Further details are provided elsewhere.[5,9]

We found no difference in sexual victimization in adolescence between participants who subsequently remained in the study and those who dropped out. On the other hand, analysis of variance suggested a difference in mean number of physical assault experiences during adolescence (P=.048); however, a post hoc analysis of these differences revealed no significant pairwise group differences. Further comparisons of selected variables in these 2 groups each year revealed no statistically significant differences as a function of time in the study for childhood experiences with family violence, childhood sexual experiences, dating frequency, number of partners, race, or relationship status at baseline. However, we did find that young women who dropped out of the study early were more likely to display signs of psychological distress, had reported being more sexually active as adolescents, and had reported more experiences getting drunk (although frequency of drinking was not different). We found no statistically significant interactions between victimization and length of time in the study for any of these variables.

Incidence and Prevalence of Physical Victimization

From adolescence through the fourth year of college, 88% of the young women experienced at least 1 incident of physical or sexual victimization, and 63.5% experienced both (Table 1). The proportion of women experiencing any physical (77.8%) or any sexual (79.2%) victimization was nearly identical.

Of women physically victimized during adolescence, 25.4% were verbally threatened with harm, and 5.0% were hit (or hitting was attempted) with something hard. By the end of the fourth year of college, these numbers had risen to 42.3% and 13.3%, respectively. Humphrey and White,[5] who previously reported on the rates of sexual victimization in this sample, found that the most common form of victimization in adolescence was verbally coercive sexual assault—15.1% in high school, rising to 21.1% by the end of college. The percentage of young women reporting attempted rape rose from 7.4% in adolescence to 11.8% by the end of college; similarly, the percentage reporting forcible rape was 13% in adolescence and 21.1% by the end of college.

By definition, all of the perpetrators of physical assault were "romantic partners" of the women. In adolescence, 62.4% of the perpetrators of sexual victimization were identified as boyfriends; the percentage of offenders identified as boyfriends rose during each successive year in college (67.7%, 72.6%, 75.4%, and 77.5%, for years 1 through 4, respectively). The combined percentage of sexual assault offenders identified as boyfriends, friends, or casual acquain-

tances was 95% or greater across the 5 assessment periods.

Although some minor differences by race were found within particular years, the overall pattern for all 3 types of victimization (physical, sexual, covictimization) was similar for White and Black women. By the end of the fourth year of college, 74.8% of the White women and 81.5% of the Black women reported sexual victimization; 76.6% and 81.1%, respectively, had been physically assaulted, and 62.5% and 67%, respectively, reported covictimization. These differences were not significant.

TABLE 3—Relative Risk of Revictimization and Prevalence Odds of Covictimization in High School and College

	High School	1st Year of College	2nd Year of College	3rd Year of College	4th Year of College
Relative risk of experiencing physical assault in a year given physical assault in a prior year (revictimization)	. . .	2.96*	2.70*	3.75*	4.26*
Prevalence ratio of experiencing physical assault given sexual assault in the same year (covictimization)	1.46*	1.75*	2.82*	2.49*	3.13*

*$P < .05$. Results are 2-tailed.

Groups of Women at Greatest Risk for College Victimization

The group of women most likely to be physically or sexually victimized or covictimized across the 4 years of college were those with a history of both childhood victimization (any type) and physical victimization in adolescence (Table 2). Women who were physically victimized in adolescence but not in childhood were the group at second greatest risk. Higher proportions of this group of women experienced subsequent victimization than of women who were victimized in childhood but not in adolescence. The group at lowest risk were those who experienced neither childhood nor adolescent victimization.

Patterns of Victimization Over Time

Survival analyses indicated that risk of first physical victimization was greatest in adolescence (hazard rate [HR]=0.18) and declined substantially thereafter (HRs=0.01, <0.01, and <0.01 for collegiate years 1, 2, and 3, respectively; HR for year 4 was indeterminate). This analysis also indicated that adolescent physical victimization significantly increased the risk of physical victimization in college (HRs given no adolescent victimization=0.09, 0.03, and >0.01; HRs with victimization=0.25, 0.10, and 0.03 for years 1, 2, and 3, respectively). Similarly, adolescents who were sexually assaulted were at greater risk for physical assault (HRs=0.18, 0.06, and <0.01) relative to those who were not sexually assaulted (HRs=0.05, 0.02, and 0.02 for years 1, 2, and 3, respectively). The impact of adolescent covictimization on the risk of collegiate physical assault was apparent (HRs=0.34, 0.14, and <0.01 for years 1, 2, and 3, respectively). Whereas being sexually victimized in the absence of physical victimization in adolescence did not increase the risk of physical victimization during the first year of college above baseline, adolescent physical victimization without sexual victimization did increase that risk, although not as much as when covictimization was present (HRs=0.14, 0.07, and 0.06 for years 1, 2, and 3, respectively).

Survival analysis confirmed our other finding, that women at greatest risk for collegiate physical victimization were those who had experienced victimization in both childhood (any type) and adolescence (HRs=0.44, 0.13, and <0.01 at years 1, 2, and 3, respectively). Women who experienced adolescent physical victimization but were not physically or sexually abused as children were at greater risk for physical victimization in college than were women who did not experience victimization in adolescence. However, young women who were abused in childhood but not in adolescence were not at greater risk for physical victimization in college compared with women who were not abused as children. This finding held for all 3 forms of childhood victimization.

Risk of Revictimization and Covictimization

The relative risk of being victimized in college given prior victimization in adolescence was 2.96 (Table 3). Although the overall proportion of women reporting physical victimization decreased over time, the relative risk of being physically victimized rose across the 4 years for women who had been physically victimized in the immediately preceding year (Table 3). The prevalence ratios of experiencing 1 type of victimization given exposure to the other type in the same year (i.e., covictimization) during adolescence and during each of the 4 years of college were significant (Table 3). As with revictimization, a trend was seen of increasing odds of covictimization over time.

DISCUSSION

This study provides unique longitudinal data on initial victimization, covictimization, and revictimization. Adolescence was the period during which young women were at greatest risk for physical dating violence and covictimization. We found that unless they also experienced dating violence during adolescence, young women who experienced childhood victimization were not at increased risk for dating violence in college. We also found that women who were physically victimized in high school were at significantly greater risk for physical victimization in college (revictimization) and that the risk for covictimization was significant, with victimization of 1 type (i.e., either physical or sexual) elevating the risk of victimization of the other type. The patterns of revictimization and covictimization persisted throughout the college years. These results parallel those of Humphrey and White,[5] who found that sexual assault was more prevalent during adolescence than during the college years and that young women who experienced sexual victimization during adoles-

cence were at higher risk for sexual victimization during college.

Overall, our study indicated that physical and sexual dating violence is a common experience, with 88% of the women reporting at least 1 incident of physical or sexual victimization between adolescence and their fourth year of college when victimization was defined broadly. The percentage remained high (66%) even when analyses were limited to the more severe forms of sexual (attempted or completed rape) or physical (hitting, pushing, throwing something) victimization. Furthermore, our data indicate that covictimization, which has its highest incidence during adolescence, is perhaps a unique form of victimization, because its prevalence exceeds what would be expected, even given the high rates of physical and of sexual victimization.

Implications for Measurement

The way researchers elect to measure dating violence directly influences their findings of prevalence and incidence.[17] Thus, our inclusion of items across a range of severity may partly explain why our rates of physical assault were higher than the rates found by researchers who limited their measures to more severe[6] or less specific[7] items, and why our findings were consistent with the findings of researchers whose measures included a broader range of item severity.[12,18] However, our study may also have found higher rates because, unlike most other studies on dating violence, we collected our college data prospectively rather than cross-sectionally.

Forms of dating violence victimization that are more severe—such as "being hit with something hard," "being beaten up," and "legally defined rape or attempted rape"—do not occur in a vacuum, but rather in the context of substantial, perhaps subtler, forms of "gendered" aggression (i.e., aggression in which the meanings, motives, and consequences are different for women and men). We found that during adolescence the most common form of sexual victimization was verbally coercive sexual assault—the vast majority of which occurred within the context of a dating relationship—and the most common form of physical aggression was verbal threats. However, by the fourth year of college, although the overall incidence was decreasing, forcible rape was as common as verbally coercive sexual assault, and proportionally more abused women reported actually being assaulted than reported being threatened.

It is possible that the less severe forms of coercive and threatening aggression provide the context for the later emergence and acceptance of more severe forms of physical and sexual assault. For example, the lines that separate legally defined rape, verbally coercive sexual aggression, pressuring a young woman into sex, and giving in to unwanted sex may not be clear to many adolescents or young adults, with the behaviors and contexts that define the socially unacceptable varying by age, sex, culture, and socioeconomic status.[19–21] If less severe items are associated with poor health and social outcomes, as recent research suggests,[22] or serve as risk factors for more severe aggression, then it is important that we better understand their causes, consequences, and contexts.

Limitations

The study's limitations include our sampling frame (which limits our findings to young women who attended college), our reliance on self-report data, and the fact that assessment of victimization in childhood and adolescence was retrospective. Also, our prospective analysis was limited by the fact that many students withdrew from college and, hence, from our study. However, we have confidence in the accuracy of our findings. Nearly two thirds (73%) of the initial sample provided usable data through the sophomore year, and analyses indicated few differences between those who did and did not remain in the study. Many of our data are prospective, with short recall time frames. This, combined with our use of behaviorally specific measures of victimization, meant that the women did not have to identify and/or label their own experiences as abusive. This approach tends to increase the accuracy of self-report of victimization.[17]

Implications for Practice and Prevention

Our findings suggest that if we are able to prevent the occurrence of dating violence victimization during adolescence, we may also be able to prevent dating violence during college and possibly domestic violence in adulthood as well. Because young women who experience physical or sexual victimization in high school are at elevated risk for victimization in college, early intervention and treatment for these women is critical. We need more interventions targeting these high-risk populations that address covictimization and revictimization. Children known to have been abused or to have witnessed domestic violence, young women who seek out domestic violence or sexual assault services, or adolescents involved in illegal activities are appropriate target populations.

Although our analyses do not indicate why girls who were abused as children but not revictimized in adolescence were not at elevated risk for college victimization, it is likely that at least part of the answer lies in the way that these girls managed their childhood victimization experiences. It may be that resilience or strength gained through the process of reporting and recovering from childhood abuse somehow protected these girls from subsequent revictimization in high school.

However, we also found that many women who have experienced physical violence came from low-risk populations. One in 8 women not physically victimized in either childhood or adolescence still experienced either physical victimization or covictimization during her first year of college. The fact that dating violence is widespread indicates a need to identify factors in the broader social ecology that place women at risk for victimization and men at risk for perpetration, and that condone dating violence.[23]

Further research is also needed on covictimization in the context of a single relationship and by different perpetrators. We concur with recommendations that studies incorporate measures of multiple types of aggression,[22,25,26] including battering[22,24,27] and psychological abuse, in addition to the more commonly used measures of physical and sexual assault. Finally, we need more knowledge of the factors that mediate the relationships between different types of childhood experiences and subsequent victimization in adolescence, and those that mediate the relationship between women's experiences with adolescent victimization and revictimization in college. ■

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Contributors

P.H. Smith planned the analysis, analyzed the data, and wrote the article. J.W. White planned the study and analysis, analyzed the data, and wrote the article. L.J. Holland assisted with data analysis and writing of the article.

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Human Participant Protection

Along with approval from the University of North Carolina at Greensboro institutional review board, we obtained a federal certificate of confidentiality from the National Institute of Mental Health.

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